



Don't Drown in Shallow Water

By Tanya C. Brown,
Bureau of Medicine and Surgery

It doesn't seem logical for a skilled swimmer to drown during a routine dive or while swimming underwater, but that danger became a reality. Three Sailors who were victims of shallow-water blackout drowned during training sessions.

Shallow-water blackout is a result of hyperventilating or taking a series of short breaths before going underwater. The *U.S. Navy Diving Manual*, however, prohibits this technique.

One of the victims, a chief petty officer, was a skilled swimmer who died while alone in a base pool. Friends said he practiced breath-holding to extend the amount of time he could stay submerged. In this case, when he had a problem, there was no one at the pool to assist him.

Aerobic activity is the only safe way to increase endurance. The Navy is concerned enough about shallow-water blackout that commanders have been directed to inform personnel about this danger and to post warnings in swimming areas.

According to Capt. John Murray, MC, Bureau of Medicine and Surgery, Washington, D.C., taking a few short breaths before going underwater is a natural thing to do. He said that most people who go snorkeling or swimming feel more comfortable if they take a series of breaths before going under.

"It's more of a passed on or learned [behavior]," said Murray. "What's not passed on is the danger."

The danger begins when a swimmer takes a series of breaths before going underwater, thereby decreasing or eliminating the amount of carbon dioxide in the blood stream. Carbon dioxide supplies the body's primary urge to inhale while breathing. Taking a series of breaths expels the carbon dioxide, allowing the swimmer to stay underwater longer before feeling a need to breathe.

While diving, the levels of carbon dioxide and oxygen levels increase as the depth of the dive increases. As the carbon dioxide builds up, the diver feels a need to breathe and heads to the surface. The level of carbon dioxide decreases as the diver heads to the surface, while the already burned off oxygen supply falls rapidly, causing the diver to become unconscious and possibly drown.

Murray stressed that people who make breath-hold dives or who go snorkeling usually can hold their breath long enough to accomplish their goals. Those who aren't effective divers, however, should use the appropriate underwater-breathing equipment.

"It's always tragic to lose young, active-duty personnel," said Murray. "These were top individuals who pushed themselves past their limit." ☹